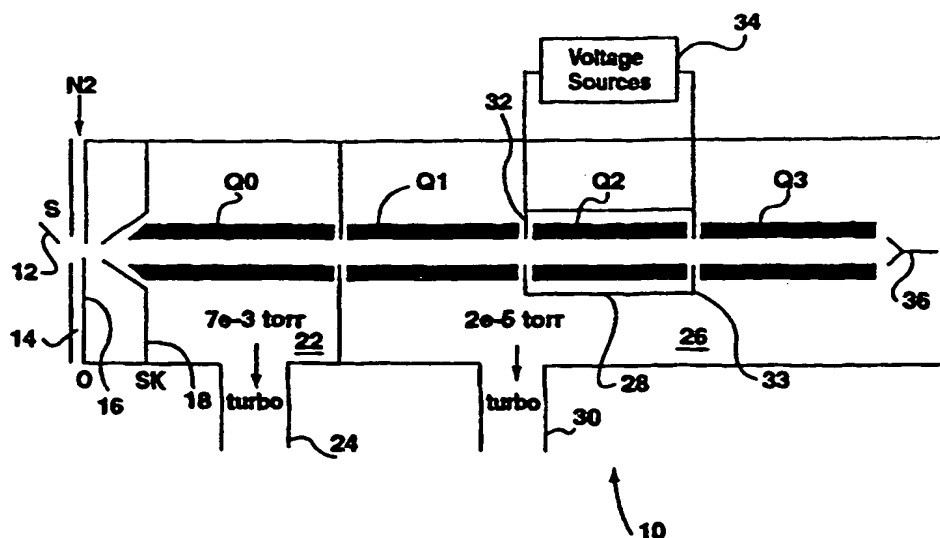




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(54) Title: METHOD AND APPARATUS FOR MULTIPLE STAGES OF MASS SPECTROMETRY



(57) Abstract

A method of and apparatus for analyzing a stream of ions first subjects a stream of ions to a first mass analysis step, to select ions having a mass-to-charge ratio in a first desired range; this enables a mass analyzer with high resolution to be used. The selected ions are then passed into a radiofrequency linear ion trap containing a gas. The trapped ions are caused to collide with the gas, either by being injected with a high axial energy or by application of external excitation to cause fragmentation. Fragment ions of a given mass-to-charge ratio can then be isolated and excited to produce fragments of fragments. This process can be repeated to give multiple steps of mass spectrometry, MSⁿ. The fragment ions, and undissociated precursors are then passed out of the linear ion trap and subjected to a further mass analysis step, for example in a time of flight device, to determine the mass spectrum of the ions.